What is claimed is:

1. An apparatus capable of providing an output signal in response to sound pressure in the vicinity of a desired acoustic source, the apparatus comprising:

a main body;

a boom, movably coupled to the main body and adapted to be positioned in at least a first position or a second position;

a microphone;

an acoustic sensing point, acoustically coupled to the microphone, wherein the acoustic sensing point is disposed at different distances from the desired acoustic source when the boom is in the first position and the second position; and

a controller, coupled to the boom, for changing a ratio of an amplitude of the output signal to an amplitude of sound pressure at the acoustic sensing point in response to the position of the boom.

2. The apparatus of claim 1, wherein the controller is adapted to maintain a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source substantially independent of the position of the boom.

3. The apparatus of claim 1, wherein the controller is adapted to change an amplification gain in response to the position of the boom, wherein the amplification gain is a ratio of the amplitude of the output signal to an amplitude of an electrical signal converted by the microphone from sound pressure at the diaphragm.

4. The apparatus of claim 1, wherein the controller is adapted to change a microphone sensitivity in response to the position of the boom, wherein the microphone

sensitivity is a ratio of an amplitude of an electrical signal converted by the microphone from sound pressure at the diaphragm to an amplitude of the sound pressure at the diaphragm.

5. The apparatus of claim 4, wherein:

the microphone is of a capacitive type; and

the controller is adapted to change a bias voltage of the microphone.

6. The apparatus of claim 4, wherein:

the microphone is a directional, capacitive microphone; and

the controller is adapted to change a volume of at least one sealed acoustic cavity acoustically coupled to the diaphragm.

7. The apparatus of claim 1, wherein the controller is adapted to change a ratio of an amplitude of sound pressure at the diaphragm to the amplitude of the sound pressure at the acoustic sensing point in response to the position of the boom.

8. The apparatus of claim 7, wherein the controller is adapted to change an amount of acoustic absorption in an acoustic channel coupling the acoustic sensing point to the microphone diaphragm.

9. The apparatus of claim 7, wherein the controller is adapted to change an amount of impedance mismatch in an acoustic channel coupling the acoustic sensing point to the microphone diaphragm.

10. The apparatus of claim 1, wherein the apparatus is a communications headset.

11. The apparatus of claim 1, wherein the apparatus is a mobile phone.

12. The apparatus of claim 1, wherein the apparatus is a sound recorder.

13. The apparatus of claim 1, wherein the apparatus is a video camera.

14. An apparatus capable of providing an output signal in response to sound pressure in the vicinity of a desired acoustic source, the apparatus comprising:

a main body;

a boom, movably coupled to the main body and adapted to be positioned in at least a first position or a second position;

a microphone, for generating output signals in response to sound pressure from the desired acoustic source;

an acoustic sensing point, acoustically coupled to the microphone, wherein the acoustic sensing point is disposed at different distances from the desired acoustic source when the boom is in the first position and the second position; and

sensitivity control means, coupled to the boom, for changing the a ratio of an amplitude of the output signal to an amplitude of sound pressure at the acoustic sensing point in response to the position of the boom.

15. The apparatus of claim 14, wherein the sensitivity control means is adapted to maintain a ratio of the amplitude of the output signal to an amplitude of sound pressure in the vicinity of the desired acoustic source substantially independent of the position of the boom.

16. The apparatus of claim 14, wherein the sensitivity control means is adapted to change a microphone sensitivity in response to the position of the boom, wherein the microphone sensitivity is a ratio of an amplitude of an electrical signal converted by the microphone from sound pressure at the diaphragm to an amplitude of the sound pressure.

17. The apparatus of claim 16, wherein:

the microphone is a directional, capacitive microphone; and

the sensitivity control means is adapted to change a volume of at least one sealed acoustic cavity acoustically coupled to the diaphragm.

18. The apparatus of claim 14, wherein the sensitivity control means is adapted to change a ratio of an amplitude of sound pressure at the diaphragm to the amplitude of the sound pressure at the acoustic sensing point in response to the position of the boom.

19. The apparatus of claim 18, wherein the sensitivity control means is adapted to change an amount of acoustic absorption in an acoustic channel coupling the acoustic sensing point to the microphone diaphragm.

20. The apparatus of claim 18, wherein the sensitivity control means is adapted to change an amount of impedance mismatch in an acoustic channel coupling the acoustic sensing point to the microphone diaphragm.

21. An apparatus capable of providing output signals in response to acoustic signals received from a desired acoustic source, the apparatus comprising:

a main body;

a boom, movably coupled to the main body and adapted to be positioned in at least a first position or a second position relative to the main body, and further having at least a first opening for receiving acoustic signals when the boom is in at least one of the first position and the second position;

a microphone, having a diaphragm; and

a controller circuit, coupled to the boom, adapted to change a ratio of an amplitude of the output signal to an amplitude of the acoustic signal at the diaphragm in response to the position of the boom.

22. The apparatus of claim 21, further comprising:

a switch, coupled to the main body and selectively engaged by the boom, that activates the controller circuit to change the ratio of the amplitude of the output signal to the amplitude of the acoustic signal at the diaphragm in response to the boom being in at least one of the first or second position.

23. The apparatus of claim 21, wherein

the boom is slidably coupled to the main body so as to be extended from the main body and closer to the desired acoustic source in the first position, and retracted towards the main body in the second position; and

the microphone receives acoustic signals through the first opening located at a distal end of the boom when the boom is in each of the first and second positions.

24. The apparatus of claim 23, wherein:

the main body includes a boom jacket; and

the boom is slidably coupled to the boom jacket.

25. The apparatus of claim 23, wherein:

the controller circuit changes an amplification gain applied to electrical signals converted by the microphone from acoustic signals received, wherein a first amplification gain is applied when the boom is in the first position and a second amplification gain is applied when the boom is in the second position, the first amplification gain being smaller than the second amplification gain.

26. The apparatus of claim 23, wherein:

the controller circuit changes a microphone's sensitivity to acoustic signals received, wherein the microphone has a first sensitivity when the boom is in the first position and a second sensitivity when the boom is in the second position, the first sensitivity being lower than the second sensitivity.

27. The apparatus of claim 21, wherein:

the boom pivots about the main body; and

the microphone receives acoustic signals through the first opening when the boom is in the first position and through a second opening when the boom is in the second position, the first opening being located at a first distance from the desired acoustic source when the boom is in the first position and the second opening being located at a second distance from the desired acoustic source when the boom is in the second position, wherein the first distance is shorter than the second distance.

28. The apparatus of claim 27, wherein:

the controller circuit changes an amplification gain applied to electrical signals converted by the microphone from acoustic signals received, wherein a first amplification gain is applied when the boom is in the first position and a second amplification gain is applied when the boom is in the second position, the first amplification gain being smaller than the second amplification gain.

29. The apparatus of claim 27, wherein:

the controller circuit changes a microphone's sensitivity to acoustic signals received, wherein the microphone has a first sensitivity when the boom is in the first

position and a second sensitivity when the boom is in the second position, the first sensitivity being lower than the second sensitivity.

30. The apparatus of claim 21, wherein:

the boom comprises at least a first segment and a second segment movably coupled to the first segment, so as to provide the first position wherein the first segment is extended from the main body and the second segment is extended from the first segment, both being extended closer to the desired acoustic source, and to provide the second position wherein the first segment and the second segment are both retracted towards the main body; and

the microphone receives acoustic signals through the first opening located at a distal end of the second segment of the boom when the boom is in each of the first and second positions.

31. The apparatus of claim 30, wherein the first segment of the boom is slidably coupled to the main body.

32. The apparatus of claim 30, wherein the first segment of the boom pivots about the main body.

33. The apparatus of claim 30, wherein the second segment of the boom is slidably coupled to the first segment.

34. The apparatus of claim 30, wherein the second segment of the boom pivots about the first segment.

35. The apparatus of claim 30, wherein:

the controller circuit changes an amplification gain applied to electrical signals converted by the microphone from acoustic signals received, wherein a first amplification

gain is applied when the boom is in the first position and a second amplification gain is applied when the boom is in the second position, the first amplification gain being smaller than the second amplification gain.

36. The apparatus of claim 30, wherein:

the controller circuit changes a microphone's sensitivity to acoustic signals received, wherein the microphone has a first sensitivity when the boom is in the first position and a second sensitivity to acoustic signals received when the boom is in the second position, the first sensitivity being lower than the second sensitivity.

37. The apparatus of claim 21, further comprising:

a frequency response adjustment circuit, electrically coupled to the microphone, adapted to compensate for shifts in frequency spectrum in the acoustic signals received from the desired acoustic source, the frequency spectrum being a function of a distance between an acoustic sensing point and the desired acoustic source.

38. The apparatus of claim 21, wherein the microphone is a noise-canceling microphone and is disposed near the distal end of the boom, the apparatus further comprising:

a frequency response compensation circuit, electrically coupled to the microphone, adapted to compensate for shifts in frequency response to the acoustic signals received from the desired acoustic source, the frequency response being a function of a distance between the noise-canceling microphone and desired acoustic source.

39. An apparatus capable of providing output signals in response to acoustic signals from a desired acoustic source and receiving audio signals, the apparatus comprising:

a main body, enclosing a microphone for generating output signals in response to receiving acoustic signals;

a boom, movably coupled to the main body and adapted to be positioned in at least a first position or a second position relative to the main body, and further having an acoustic sensing point;

a receiver, adapted to generate an acoustic output signal in response to receiving an electrical input signal; and

a receive controller circuit, coupled to the boom, adapted to change a ratio of an amplitude of the acoustic output signal at the receiver to an amplitude of the electrical input signal at the receiver in response to the position of the boom.

40. The apparatus of claim 39, wherein:

the acoustic sensing point is closer to the desired acoustic source when the boom is in the first position than when the boom is in the second position; and

the receive controller circuit changes a receive gain applied to electrical signals received at the receiver, wherein a first receive gain is applied when the boom is in the first position and a second receive gain is applied when the boom is in the second position, the first receive gain being greater than the second receive gain.

41. An apparatus capable of providing output signals in response to acoustic signals received from a desired acoustic source, the apparatus comprising:

a main body enclosing one or more sealed cavities formed by internal walls of the main body;

a boom, movably coupled to the main body and adapted to be positioned in at least a first position or a second position relative to the main body;

a directional, capacitive microphone, sensitive to sound pressure acting on one side of the diaphragm, the sensitivity of the microphone being a function of the volumes of one or more acoustic cavities coupled to the opposite side of the diaphragm, wherein the volumes of the one or more acoustic cavities coupled to the opposite side of the diaphragm changes with the position of the boom.

42. The apparatus of claim 41, wherein

the diaphragm is acoustically coupled on the first side to an acoustic sensing point, and on the second side to at least one of the sealed cavities; and

the volume of the at least one sealed cavity changes in response to the position of the boom.

43. The apparatus of claim 41, wherein:

the diaphragm is acoustically coupled on the first side to an acoustic sensing point, and on the second side to a first subset of the sealed cavities when the boom is in the first position and to a second subset of the sealed cavities when the boom is in the second position.

44. The apparatus of claim 41, wherein:

the diaphragm is acoustically coupled to a first acoustic sensing point on the first side and to a first set of sealed cavities on the second side when the boom is in the first position, and acoustically coupled to a second acoustic sensing point on the second side

and to a second set of sealed cavities on the first side when the boom is in the second position.

45. The apparatus of claim 41, wherein:

the boom pivots about the main body; and

the directional, capacitive microphone receives acoustic signals through a first opening functioning as the acoustic sensing point when the boom is in the first position, and through a second opening functioning as the acoustic sensing point when the boom is in the second position, the first opening being located at a first distance from the desired acoustic source when the boom is in the first position, and the second opening being located at a second distance from the desired acoustic source when the boom is in the second position, wherein the first distance is shorter than the second distance.

46. The apparatus of claim 45, further comprising:

an acoustic valve, enclosed in the main body and coupled to the directional, capacitive microphone, adapted to acoustically couple the directional, capacitive microphone to the first opening when the boom is in the first position and acoustically couple the directional, capacitive microphone to the second opening when the boom is in the second position.

47. The apparatus of claim 45, wherein:

the total volume of the sealed cavities acoustically coupled to the microphone is smaller when the boom is in the first position than when the boom is in the second position.

48. An apparatus capable of providing output signals in response to acoustic signals received from a desired acoustic source, the apparatus comprising:

a main body enclosing a microphone;

a boom, movably coupled to the main body and adapted to be positioned in at least a first position or a second position; and

a first acoustic channel terminating in a first opening and a second acoustic channel terminating in a second opening, the first acoustic channel adapted to transmit acoustic signals received at the first opening to the microphone with a first transmission loss when the boom is in the first position, and the second acoustic channel adapted to transmit acoustic signals received at the second opening to the microphone with a second transmission loss when the boom is in the second position.

49. The apparatus of claim 48, wherein:

the first acoustic channel is associated with a first transmission loss and the second acoustic channel is associated with a second transmission loss.

50. The apparatus of claim 48, wherein:

the first acoustic channel has a first geometrical shape and the second acoustic channel has a second geometrical shape, the first and second levels of transmission loss being a function of the respective geometrical shapes of the first and second acoustic channels.

51. The apparatus of claim 48, wherein:

the first acoustic channel is encased in a first material and the second acoustic channel is encased in a second material, the first and second levels of acoustic conductivity being a function of the respective encasing materials of the first and second acoustic channels.

52. The apparatus of claim 48, wherein:

the boom pivots about the main body; and

the first opening is located at a first distance from the desired acoustic source when the boom is in the first position and the second opening is located at a second distance from the desired acoustic source when the boom is in the second position, the first distance being shorter than the second distance.

53. The apparatus of claim 52, wherein the first acoustic channel has a geometric shape in which acoustic impedance decreases toward the microphone.

54. The apparatus of claim 53, wherein the first acoustic channel has a reverse exponential horn shape.

55. The apparatus of claim 52, wherein the second acoustic channel has a geometric shape in which acoustic impedance increases toward the microphone.

56. The apparatus of claim 55, wherein the second acoustic channel has an exponential horn shape.

57. The apparatus of claim 52, wherein the first acoustic channel includes an acoustic energy attenuator element.

58. An apparatus capable of providing output signals in response to acoustic signals, including acoustic signals received from a desired acoustic source, the apparatus comprising:

a main body;

a microphone housed in the main body;

a primary boom, coupled to the main body; and

a secondary boom, slidably coupled to the primary boom and having an opening at its distal end, the opening being acoustically coupled to the microphone, wherein a

ratio of an amplitude of the output signal to an amplitude of acoustic signals received at the opening of the secondary boom is a function of the position of the secondary boom.

59. The apparatus of claim 58, wherein:

the primary boom is movably coupled to the main body; and

the ratio of the amplitude of the output signal to the amplitude of the received acoustic signal is a function of the positions of both the primary boom and the secondary boom.

60. The apparatus of claim 58, further comprising:

an extendable acoustic channel, acoustically coupling the microphone to the opening at the distal end of the secondary boom, the acoustic channel extending from a point of coupling of the boom with the main body to the distal end of the secondary boom, the extendable acoustic channel being substantially axially in line through the primary boom and the secondary boom, wherein the acoustic channel is associated with a transmission loss that is a function of the length of the acoustic channel.

61. The apparatus of claim 58, wherein the extendable acoustic channel comprises:

a first acoustic channel in the primary boom encased in a first material; and

a second acoustic channel in the secondary boom encased in a second material, the first acoustic channel being of variable length in response to a sliding position of the secondary boom relative to the primary boom.

62. The apparatus of claim 56, wherein the secondary boom comprises a steel tube.

63. The apparatus of claim 4, wherein:

the microphone is of a capacitive type; and

the controller is adapted to change a bias resistance of the microphone.